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EXAMINER	
SHOSHO, CALLIE E	

ART UNIT	PAPER NUMBER
1714	

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/664,895	KAMOTO ET AL.	
	Examiner	Art Unit	
	Callie E. Shosho	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4,5,7-10 and 12-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,5,7-10 and 12-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. All outstanding rejections are overcome by applicants' after-final amendment filed 9/19/06 that has been entered.

Upon updating the searches new references came to the attention of the examiner, namely, Breton et al. (U.S. 5,977,209) and Foucher et al. (U.S. 2003/0018100). In light of the use of these new references against the present claims, the finality of the previous office action has been withdrawn and thus, the following action is non-final.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 4, 9-10, 15-17, 22-23, and 26-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Breton et al. '209 (U.S. 5,977,209) taken in view of the evidence given in Breton et al. '108 (U.S. 6,384,108), Nagashima et al. (U.S. 4,625,220), and Endo et al. (U.S. 4,723,129).

Breton et al. '209 disclose ink comprising water, solvent such as polyhydric alcohol or glycol ether, pigment such as carbon black, nonionic surfactant present at critical micelle concentration or more, and sulfonated polyester. For specific examples of the sulfonated polyester, Breton et al. '209 refers to U.S. serial No. 08/536,236 which corresponds to Breton et al. '108 which discloses sulfonated polyester obtained from 50 mol% diol such as alkylene glycol and 50 mol% diester which comprises 2.5-15 mol% sulfonated aromatic moiety, i.e.

aromatic dicarboxylic acid having metal sulfonate group, wherein the sulfonated polyester has glass transition temperature of 35-80 ^{0}C and molecular weight of 500-50,000. Breton et al. '209 also disclose recording method comprising depositing ink onto recording material to form image wherein the ink jet printer uses piezo or thermal process to form the recorded image (col.1, lines 26-31, col.3, lines 35-40, col.5, lines 34-36 and 61-65, col.6, lines 6-7, col.6, line 52-col.7, line 11, col.8, lines 10-22, col.9, line 48-col.10, line 9, and col.10, lines 18-20). Although it is not clear if the molecular weight referred to by Breton et al. '209 is weight average or number average, if the molecular weight is number average, there is clear overlap with claimed molecular weight, i.e. 50,000, while if the molecular weight is number average, given the relationship between weight average molecular weight (Mw) and number average molecular weight (Mn), i.e. Mw/Mn > 1, it is clear that the number average molecular weight of Breton et al.'209 would overlap that presently claimed.

With respect to claims 26-29, while Breton et al. '209 disclose depositing ink onto substrate using ink jet printer utilizing piezo or thermal process, there is no explicit disclosure regarding the components of the printer. However, it is well known, as evidenced by Nagashima (col.1, lines 22-33 and col.2, lines 26-46), that ink jet printer using piezoelectric process would inherently include ink head comprising ink tank for storing the ink, ink chamber for discharging the ink, and piezoelectric element for applying pressure to the ink in response to voltage applied using electrode. Further, it is well known, as evidenced by Endo et al. (col.1, lines 16-19 and col.14, lines 32-36), that ink jet printer using thermal process would inherently include ink head comprising ink tank, i.e. reservoir, for storing the ink, ink chamber having discharge ports for

discharging the ink, heater to heat the ink and generate air bubbles, and electrodes for applying voltage.

In light of the above, it is clear that Breton et al. '209 anticipate the present claims.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Breton et al. '209 (U.S. 5,977,209) in view of Sharma et al. '883 (U.S. 5,464,883).

The disclosure with respect to Breton et al. '209 in paragraph 3 above is incorporated here by reference.

The difference between Breton et al. '209 and the present claimed invention is the requirement in the claim that the water present in the ink have electroconductivity of 250 μS/cm or less.

Sharma et al. '883, which is drawn to aqueous ink jet ink comprising sulfopolyester, disclose using deionized water that possesses no ions in order to prevent precipitation of the sulfopolyester (col.4, lines 54-57). It is clear that such deionized water would intrinsically possess electroconductivity of 250 μS/cm or less.

In light of the motivation for using deionized water disclosed by Sharma et al. '883 as described above, it therefore would have been obvious to one of ordinary skill in the art to use deionized water in the ink of Breton et al. '209 in order to prevent precipitation of the sulfopolyester, and thereby arrive at the claimed invention.

7. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breton et al. '209 (U.S. 5,977,209) in view of Johnson et al. (U.S. 5,922,118).

The disclosure with respect to Breton et al. '209 in paragraph 3 above is incorporated here by reference.

The difference between Breton et al. '209 and the present claimed invention is the requirement in the claims of pigment that has hydrophilic group.

Johnson et al. disclose the use of colored pigment having attached ionic group including carboxyl or sulfonic group wherein the pigment is carbon black or organic pigment. The motivation for using such hydrophilic pigment is to produce ink with improved optical density (col.1, lines 14-16, col.2, lines 54-65, col.4, lines 34-40 and 49-66, col.6, line 50-col.7, line 20, col.10, lines 47-59, and col.11, line 61-col.12, line 7).

In light of the motivation for using hydrophilic pigment disclosed by Johnson et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such pigment in the ink of Breton et al. '209 in order to produce ink with improved optical density, and thereby arrive at the claimed invention.

8. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breton et al. '209 (U.S. 5,977,209) in view of Erdtmann et al. (U.S. 6,533,408).

The disclosure with respect to Breton et al. '209 in paragraph 3 above is incorporated here by reference.

The difference between Breton et al. '209 and the present claimed invention is the requirement in the claims of specific pigment.

Erdtmann et al., which is drawn to ink jet ink, disclose the use of pigment such as Pigment Blue 15:3, Pigment Red 122, and Pigment Yellow 138, 150, and 180 and disclose that

the choice of pigment depends on the specific application and performance requirements such as color reproduction and image stability (col.4, lines 19-26, 43-45, 52, and 58-59).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use pigment in Breton et al. '209, including Pigment Blue 15:3, Pigment Red 122, and Pigment Yellow 138, 150, and 180 as presently claimed, in order to produce ink with desired color reproduction and good image stability, and thereby arrive at the claimed invention.

9. Claims 1, 4, 9-10, 15-17, 22-23, and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breton et al. '209 (U.S. 5,977,209) in view of Breton et al. '108 (U.S. 6,384,108), Nagashima et al. (U.S. 4,625,220), and Endo et al. (U.S. 4,723,129).

Breton et al. '209 disclose ink comprising water, solvent such as polyhydric alcohol or glycol ether, pigment such as carbon black, nonionic surfactant present at critical micelle concentration or more, and sulfonated polyester. For specific examples of the sulfonated polyester, Breton et al. '209 refers to U.S. serial No. 08/536,236 which corresponds to Breton et al. '108 (col.3, lines 21 and col.4, line 21-col.5, line 27)which discloses sulfonated polyester obtained from 50 mol% diol such as alkylene glycol and 50 mol% diester which comprises 2.5-15 mol% sulfonated aromatic moiety, i.e. aromatic dicarboxylic acid having metal sulfonate group wherein the sulfonated polyester has glass transition temperature of 35-80 ^{0}C and molecular weight of 500-50,000. Breton et al. '209 also disclose recording method comprising depositing ink onto recording material to form image wherein the ink jet printer uses piezo or thermal process to form the recorded image (col.1, lines 26-31, col.3, lines 35-40, col.5, lines 34-

36 and 61-65, col.6, lines 6-7, col.6, line 52-col.7, line 11, col.8, lines 10-22, col.9, line 48-col.10, line 9, and col.10, lines 18-20).

With respect to claims 26-29, while Breton et al. '209 disclose depositing ink onto substrate using ink jet printer utilizing piezo or thermal process, there is no explicit disclosure regarding the components of the printer. However, it is well known, as found in Nagashima (col.1, lines 22-33 and col.2, lines 26-46), that ink jet printer using piezoelectric process would intrinsically include ink head comprising ink tank for storing the ink, ink chamber for discharging the ink, and piezoelectric element for applying pressure to the ink in response to voltage applied using electrode. Further, it is well known, as found in by Endo et al. (col.1, lines 16-19 and col.14, lines 32-36), that ink jet printer using thermal process would intrinsically include ink head comprising ink tank, i.e. reservoir, for storing the ink, ink chamber having discharge ports for discharging the ink, heater to heat the ink and generate air bubbles, and electrodes for applying voltage.

With respect to the amount of aromatic dicarboxylic acid having metal sulfonate group that is contained in the polycarboxylic acid ingredient of the polyester, molecular weight of the polyester, and glass transition temperature of the polyester, it is noted that as set forth in MPEP 2144.05, in the case where the claimed range "overlap or lie inside ranges disclosed by the prior art", a *prima facie* case of obviousness exists, *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Further, Breton et al. '209, as disclosed in Breton et al. '108, disclose controlling the amount of aromatic dicarboxylic acid having metal sulfonate group that is contained in the polycarboxylic acid ingredient of the polyester in order to control the particle size and solubility of the polyester and

controlling the glass transition temperature in order that the polyester self-emulsify and not produce sticky print (Breton et al. '108 - col.4, lines 24-35 and col.5, lines 15-27). Further, it would have been within the skill level of one of ordinary skill in the art to control the molecular weight of the polyester in order to control the viscosity of the polymer, and thus, the ink.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to utilize in Breton et al. '209 sulfonated polyester with amount of aromatic dicarboxylic acid having metal sulfonate group, molecular weight, and glass transition temperature, including that presently claimed, in order to produce ink that would not clog the printer nozzles, would not produce sticky print, and would possess suitable viscosity, and thereby arrive at the claimed invention.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Breton et al. '209 in view of Breton et al. '108, Nagashima et al., and Endo et al. as applied to claims 1, 4, 9-10, 15-17, 22-23, and 26-30 above, and further in view of Sharma et al. '883 (U.S. 5,464,883).

The difference between Breton et al. '209 in view of Breton et al. '108, Nagashima et al., and Endo et al. and the present claimed invention is the requirement in the claim that the water present in the ink have electroconductivity of 250 μS/cm or less.

Sharma et al. '883, which is drawn to aqueous ink jet ink comprising sulfopolyester, disclose using deionized water that possesses no ions in order to prevent precipitation of the sulfopolyester (col.4, lines 54-57). It is clear that such deionized water would intrinsically possess electroconductivity of 250 μS/cm or less.

In light of the motivation for using deionized water disclosed by Sharma et al. '883 as described above, it therefore would have been obvious to one of ordinary skill in the art to use deionized water in the ink of Breton et al. '209 in order to prevent precipitation of the sulfopolyester, and thereby arrive at the claimed invention.

11. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breton et al. '209 in view of Breton et al. '108, Nagashima et al., and Endo et al. as applied to claims 1, 4, 9-10, 15-17, 22-23, and 26-30 above, and further in view of Johnson et al. (U.S. 5,922,118).

The difference between Breton et al. '209 in view of Breton et al. '108, Nagashima et al., and Endo et al. and the present claimed invention is the requirement in the claims of pigment that has hydrophilic group.

Johnson et al. disclose the use of colored pigment having attached ionic group including carboxyl or sulfonic group wherein the pigment is carbon black or organic pigment. The motivation for using such hydrophilic pigment is to produce ink with improved optical density (col.1, lines 14-16, col.2, lines 54-65, col.4, lines 34-40 and 49-66, col.6, line 50-col.7, line 20, col.10, lines 47-59, and col.11, line 61-col.12, line 7).

In light of the motivation for using hydrophilic pigment disclosed by Johnson et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such pigment in the ink of Breton et al. '209 in order to produce ink with improved optical density, and thereby arrive at the claimed invention.

12. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breton et al. '209 in view of Breton et al. '108, Nagashima et al., and Endo et al. as applied to claims 1, 4, 9-10, 15-17, 22-23, and 26-30 above, and further in view of Erdtmann et al. (U.S. 6,533,408).

The difference between Breton et al. '209 in view of Breton et al. '108, Nagashima et al., and Endo et al. and the present claimed invention is the requirement in the claims of specific pigment.

Erdtmann et al., which is drawn to ink jet ink, disclose the use of pigment such as Pigment Blue 15:3, Pigment Red 122, and Pigment Yellow 138, 150, and 180 and discloses that the choice of pigment depends on the specific application and performance requirements such as color reproduction and image stability (col.4, lines 19-26, 43-45, 52, and 58-59).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use pigment in Breton et al. '209, including Pigment Blue 15:3, Pigment Red 122, and Pigment Yellow 138, 150, and 180 as presently claimed, in order to produce ink with desired color reproduction and good image stability, and thereby arrive at the claimed invention.

13. Claims 1, 4, 9-10, 15-16, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foucher et al. (U.S. 2003/0018100) in view of Koitabashi et al. (U.S. 6,454,402).

Foucher et al. disclose ink comprising water, pigment such as carbon black, organic solvent such as polyhydric alcohol, surfactant, and polyester amine obtained from organic diol such as alkylene glycol, organic diacid, amino-organic diacid, and alkali-sulfonated diacid wherein the alkali sulfonated diacid is present in amount of 2-10 mol% based on total amount of

diacid. It is disclosed that the polyester amine has glass transition temperature of 50-65 ^{0}C and number average molecular weight of 2,000-50,000 (paragraphs 3, 19, 35, 38, 40, 42, 51-53, and 55).

The difference between Foucher et al. and the present claimed invention is the requirement in the claim that the nonionic surfactant is present in amount of critical micelle concentration or more.

Foucher et al. disclose the use of surfactant, however, there is no disclosure of nonionic surfactant present in amount of critical micelle concentration or more.

Koitabashi et al., which is drawn to ink jet inks, disclose the use of nonionic surfactant such as Acetynol in amount equal to or greater than the critical micelle concentration in order to produce ink which is highly penetrable and results in ink with high fixability to paper (col.1, lines 45-61, col.15, lines 32-34 and 55-53, col.19, lines 63-66, col.20, lines 35-58, col.20, line 66-col.21, line 23, and col.22, lines 37-40).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use nonionic surfactant in amount equal to or greater than the critical micelle concentration in Foucher et al. in order to produce ink which is highly penetrable and results in ink with high fixability to paper, and thereby arrive at the claimed invention.

14. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Foucher et al. in view of Koitabashi et al. as applied to claims 1, 4, 9-10, 15-16, and 30 above, and further in view of Sharma et al. '883 (U.S. 5,464,883).

The difference between Foucher et al. in view of Koitabashi et al. and the present claimed invention is the requirement in the claim that the water present in the ink have electroconductivity of 250 μS/cm or less.

Sharma et al. '883, which is drawn to aqueous ink jet ink comprising sulfopolyester, disclose using deionized water that possesses no ions in order to prevent precipitation of the sulfopolyester (col.4, lines 54-57). It is clear that such deionized water would intrinsically possess electroconductivity of 250 μS/cm or less.

In light of the motivation for using deionized water disclosed by Sharma et al. '883 as described above, it therefore would have been obvious to one of ordinary skill in the art to use deionized water in the ink of Foucher et al. in order to prevent precipitation of the sulfopolyester, and thereby arrive at the claimed invention.

15. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foucher et al. in view of Koitabashi et al. as applied to claims 1, 4, 9-10, 15-16, and 30 above, and further in view of Johnson et al. (U.S. 5,922,118).

The difference between Foucher et al. in view of Koitabashi et al. and the present claimed invention is the requirement in the claims of pigment that has hydrophilic group.

Johnson et al. disclose the use of colored pigment having attached ionic group including carboxyl or sulfonic group wherein the pigment is carbon black or organic pigment. The motivation for using such hydrophilic pigment is to produce ink with improved optical density (col.1, lines 14-16, col.2, lines 54-65, col.4, lines 34-40 and 49-66, col.6, line 50-col.7, line 20, col.10, lines 47-59, and col.11, line 61-col.12, line 7).

In light of the motivation for using hydrophilic pigment disclosed by Johnson et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use such pigment in the ink of Foucher et al. in order to produce ink with improved optical density, and thereby arrive at the claimed invention.

16. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foucher et al. in view of Koitabashi et al. as applied to claims 1, 4, 9-10, 15-16, and 30 above, and further in view of Erdtmann et al. (U.S. 6,533,408).

The difference Foucher et al. in view of Koitabashi et al. and the present claimed invention is the requirement in the claims of specific pigment.

Erdtmann et al., which is drawn to ink jet ink, disclose the use of pigment such as Pigment Blue 15:3, Pigment Red 122, and Pigment Yellow 138, 150, and 180 and discloses that the choice of pigment depends on the specific application and performance requirements such as color reproduction and image stability (col.4, lines 19-26, 43-45, 52, and 58-59).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use pigment in Foucher et al., including Pigment Blue 15:3, Pigment Red 122, and Pigment Yellow 138, 150, and 180 as presently claimed, in order to produce ink with desired color reproduction and good image stability, and thereby arrive at the claimed invention.

17. Claims 18-21 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reem et al. (U.S. 6,715,869) in view of either Breton et al. '108 (U.S. 6,384,108) or Foucher et al. (U.S. 2003/0018100).

Reem et al. disclose ink jet ink comprising water, pigment such as Pigment Blue 15:3, Pigment Red 122, Pigment Yellow 74, and carbon black, solvent such as polyhydric alcohols and glycol ethers, nonionic surfactant, and polyester. There is also disclosed ink set comprising cyan, magenta, yellow, and black inks. Reem et al. also disclose recording method of recording images wherein the inks are deposited on a recording material (col.2, lines 49-52, col.7, lines 14-39, col.8, lines 13-19 and 50-59, and col.9, lines 6-12, 20-25, and 48). Although there is no explicit disclosure that water present in the ink has electroconductivity of 250 μS/cm or less, given that, as seen in the examples, Reem et al. uses deionized water, it is clear that the water would inherently possess electroconductivity of 250 μS/cm or less as presently claimed.

The difference between Reem et al. and the present claimed invention is the requirement in the claims of (a) specific type of polyester and (b) nonionic surfactant that is present in amount of critical micelle concentration or more.

With respect to difference (a), Reem et al. disclose the use of polyester but there is no disclosure of specific polyester as presently claimed. It is noted that while Reem et al. disclose the use of polyester known under the tradename EASTMAN AQ55, this is only one "preferred polyester" disclosed by Reem et al. A fair reading of Reem et al. as a whole broadly discloses the use of polyester (col.8, line10) that is not limited to only the preferred types.

Breton et al. '108, which is drawn to ink jet ink, disclose the use of sulfonated polyester obtained from 50 mol% diol such as alkylene glycol and 50 mol% diester which comprises 2.5-15 mol% sulfonated aromatic moiety, i.e. aromatic dicarboxylic acid having metal sulfonate group, wherein the sulfonated polyester has glass transition temperature of 35-80 ^{0}C and

molecular weight of 500-50,000 in order to produce ink with excellent waterfastness and high print quality (col.3, lines 21 and col.4, line 21-col.5, line 27).

Alternatively, Foucher et al., which is drawn to ink jet ink, disclose ink comprising polyester amine obtained from organic diol such as alkylene glycol, organic diacid, amino-organic diacid, and alkali-sulfonated diacid wherein the alkali sulfonated diacid is present in amount of 2-10 mol% based on total amount of diacid. It is disclosed that the polyester amine has glass transition temperature of 50-65 ^{0}C and number average molecular weight of 2,000-50,000 in order to produce ink with good waterfastness and low smear print quality (paragraphs 3, 19, 31, 35, 38, 40, 42, 51-53, and 55).

With respect to difference (b), Reem et al. disclose the use of nonionic surfactant, however, there is no disclosure that the nonionic surfactant is present in amount of critical micelle concentration or more.

Koitabashi et al., which is drawn to ink jet inks, disclose the use of nonionic surfactant in amount equal to or greater than the critical micelle concentration in order to produce ink which is highly penetrable and results in ink with high fixability to paper (col.1, lines 45-61, col.15, lines 32-34 and 55-53, col.19, lines 63-66, col.20, lines 35-58, col.20, line 66-col.21, line 23, and col.22, lines 37-40).

In light of the motivation for using specific polymer disclosed by Breton et al. '108 or Foucher et al. and for using nonionic surfactant in amount equal to or greater than the critical micelle concentration disclosed by Koitabashi et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to (i) use such polyester as the polyester in Reem et al. in order to produce ink with excellent waterfastness and high print quality, or alternatively,

good waterfastness and low smear print quality, and (ii) to use nonionic surfactant in amount equal to or greater than the critical micelle concentration in Reem et al. in order to produce ink which is highly penetrable and has high fixability to paper, and thereby arrive at the claimed invention.

18. **NOTE:** It is noted that the present specification provides comparative data. However, it is the examiner's position that such data is not persuasive in overcoming the 35 USC 103 rejections above utilizing Breton et al. '209 for the following reasons.

The comparative data compares ink within the scope of the present claims, i.e. comprising polyester possessing glass transition temperature (Tg) and number average molecular weight (Mn) as presently claimed (examples 1-7), with ink outside the scope of the present claims, i.e. comprising polyester possessing Tg outside the scope of the present claims (example 9) and Mn outside the scope of the present claims (example 10). It is shown that the presently claimed inks are superior in terms of image quality or discharge stability.

However, the data is not persuasive given that there is not proper side-by-side comparison between examples 1-7 and example 9 or example 10. That is, the inks of examples 1-7 and example 9 or example 10 contain different types and amount of surfactant and organic solvent. Further, the inks of example 9 and example 10 each comprise water with different electroconductivity then the water of examples 1-7. Thus, it is not clear if the differences between examples 1-7 and example 9 or examples 1-7 and example 10 are due to the difference in glass transition temperature (example 9) or molecular weight (example 10) or to the different types and amounts of solvents, surfactants, etc. utilized in the inks. Further, the comparative data

is not commensurate in scope with the scope of the "closest" prior art, namely, Breton et al. '209. That is, example 10 utilizes polyester with number average molecular weight of 51,000, which is not only outside the scope of the present claims but also outside the scope of Breton et al. '209 where the highest disclosed molecular weight is 50,000.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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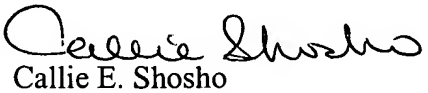

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